

WHAT IS CLAIMED IS:

1. An integrated heat exchanger for a vehicle, comprising:
tube assemblies each of which is formed from a single sheet of metal plate and
5 comprises a first tube formed by bending a lateral end portion of the metal plate onto a top
surface of a body portion of the plate, a second tube formed by bending the other lateral
end portion of the metal plate onto the top surface of the body portion, and inner fins
formed in at least any one of the tubes for partitioning the interior of any one of the tubes
into several compartments by bending an inner fin forming portion onto the top surface of
10 the metal plate, said inner fin forming portion being integrally formed at an outermost side
of the metal plate; and
radiating fins installed between the tube assemblies.
2. The heat exchanger as claimed in claim 1, wherein longitudinal slits are formed at
15 the body portion between the first and second tubes.
3. The heat exchanger as claimed in claim 1 or 2, wherein the radiating fins are
separately formed in pairs and the pairs of radiating fins are interposed between the
adjacent first tubes and between the adjacent second tubes, respectively.
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4. The heat exchanger as claimed in claim 1 or 2, wherein each of the radiating fins is
formed as a single piece in order to be interposed between the adjacent tube assemblies,
and longitudinal slits are formed at a middle portion of each of the radiating fins.
- 25 5. The heat exchanger as claimed in claim 1 or 2, wherein an outermost part of the
lateral end portion of the tube with no inner fins formed therein is in surface contact with
the top surface of the body portion.
- 30 6. A method for manufacturing a heat exchanger for a vehicle including tube
assemblies each of which has a pair of tubes integrally formed from a single sheet of metal

plate, and fins interposed between the tube assemblies for performing heat radiation, comprising the steps of:

forming an inner fin forming portion for providing inner fins in the tubes on at least one lateral end portion of the single sheet of metal plate;

5 forming the pair of tubes by bending both lateral end portions at least one of which includes the inner fin forming portion to bring the end portions into contact with a top surface of a body portion of the metal plate; and

performing a brazing process in a state where the fins are interposed between the tube assemblies.

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7. A method for manufacturing a heat exchanger for a vehicle, comprising the steps of:

forming an inner fin forming portion for providing inner fins in a first tube on a lateral end portion of a metal plate;

15 bending the inner fin forming portion to come into contact with a top surface of a body portion of the metal plate;

forming the first tube by bending a part of the body portion including the inner fin forming portion again to bring the inner fin forming portion into contact with the top surface of the body portion; and

20 forming a second tube by bending the other lateral end portion of the metal plate to bring an outermost part of the other lateral end portion into contact with the top surface of the body portion.

8. The method as claimed in claim 7, wherein the steps of forming the first and
25 second tubes are simultaneously performed.

9. The method as claimed in claim 7, wherein tube assemblies each of which comprises the first and second tubes are arranged one above another and the method further comprises the step of brazing the tube assemblies and radiating fins in a state where
30 the radiating fins are interposed between the vertically arranged tube assemblies.

10. The method as claimed in claim 7, wherein the outermost part of the other lateral end portion of the second tube is bent to come into surface contact with the body portion.